

elongate, ninth gradually thickened, tenth only slightly longer than broad, eleventh oviform; they are fusco-testaceous. *Eyes* prominent, transverse, evidently emarginate in front. General ground-colour piceous.

Its systematic position is near *A. lanuginosus* (968).

Length (rost. incl.) $1\frac{3}{4}$; breadth $\frac{3}{4}$ line.

Invercargill. One specimen on cardboard submitted for identification by Mr. A. Philpott, after whom I have named it.

[To be continued.]

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

June 16th, 1909.—Prof. W. J. Sollas, LL.D., Sc.D., F.R.S.,
President, in the Chair.

The following communications were read:—

1. 'The Carboniferous Limestone of County Clare.'
By James Archibald Douglas, M.A., B.Sc., F.G.S.

The district with which this paper deals forms the westernmost limit of the great central Carboniferous Limestone plain of Ireland.

The limestone floors nearly the whole of Eastern Clare, from the southern shore of Galway Bay to the banks of the Shannon. This area, for the purposes of description, is divided into two main districts.

The whole of the northern region is formed by a vast elevated plateau of Upper or Viséan Limestone, with a surface more than 100 square miles in extent, which rises on the north and east in steep terraced cliffs, but to the south-west dips gently below the so-called 'Coal-Measure' Series. The surface of this plateau is formed of bare rock, devoid of vegetation and presenting the typical appearance of a Karst landscape. The rainfall is considerable, but is nearly all carried off by subterranean channels.

The southern district presents a totally different aspect. The high ground is no longer formed of limestone: that on the east being formed by Old Red Sandstone and Silurian rocks, that on the west by Coal-Measures. The older formations appear as two anticlinal flexures with a north-easterly trend, forming the mountains of Slieve Aughty and Slieve Bernagh, between which lies a broad syncline of Carboniferous Limestone. The margin of this syncline is formed by Tournaisian shales and limestone, the successive zones

of which can be traced round its outcrop, while the Viséan limestones occupy the core. Much of the country is obscured by drift, chiefly derived from the underlying rocks.

A study of the limestone-fauna shows that the Geological Survey boundary between the Upper and Lower Limestones corresponds with the transition from a Tournaisian to a Viséan fauna; the Lower Limestone cannot, however, be separated from the underlying shales; and the Middle or 'Calp' Limestone contains a fauna distinct from that of the Upper or Burren Limestone, although they are not separable on lithological grounds. An account is given of the zones recognized in County Clare, and a correlation made with the sequence in other British localities.

The Old Red Sandstone is succeeded, to all appearance conformably, by a thin series of sandy shales containing brachiopods characteristic of the *Cleistopora*-Zone, at the base of which a band is found containing abundant Modioliform lamellibranchs. The *Zaphrentis*-Zone is well developed, the *clathratus*-subzone forming the top of the Lower Limestone-Shales, and the *konincki*-subzone the lower stratified limestone.

The most remarkable portion of the whole sequence is included in the *Syringothyris*-Zone, which is represented by massive grey and white mottled limestones with a luxuriant molluscan fauna, large cephalopods being especially abundant. These beds show evidence of deposition in shallow water, affording further proof of a mid-Avonian period of upheaval. The fauna is compared with that of the Waulsortian phase of Belgium. The incoming of a Viséan fauna is well marked at the base of the *Seminula*-Zone; in the middle of this zone occurs an important bed of oolitic limestone, with abundant gasteropods. The *Dibunophyllum*-Zone attains a thickness equal to that seen in the Midland area. D_1 is chiefly characterized by the abundance of simple *Dibunophylla*, *Cyathophyllum murchisoni*, Clisiophyllid Lithostrotions, and *Productus latissimo-giganteus*; D_2 by the occurrence of *Lonsdalia* and *Cyathophyllum regium*; and D_3 by the abundance of Zaphrentids, *Caninia*, and Densiphyllids, and the apparent absence of Clisiophyllids and Lithostrotions.

An account of the chief fossil localities, under the headings of the separate Baronies, is then given, and the paper concludes with palæontological notes.

2. 'A New Species of *Sthenurus*.' By Ludwig Glauert, F.G.S.

In a large collection of remains of extinct Marsupial mammals from the Mammoth Cave, Margaret River (Western Australia), the Author recognized several mandibles of a new kangaroo of the genus *Sthenurus*. He now communicates a detailed description of one specimen, and shows that the new species most nearly resembles *Sthenurus oreas* (De Vis) and *Sth. atlas* (Owen).

3. 'Some Reptilian Remains from the Trias of Lossiemouth.'

By D. M. S. Watson, B.Sc.

The fore limb of *Ornithosuchus woodwardi* is shown in a specimen in the Manchester Museum. It is small, only about one-half the size of the hind leg. The scapula is much expanded at both ends, and is indistinguishably fused with the coracoid. The latter bone is pierced by a large foramen. The humerus is a slender bone, somewhat twisted, but not much expanded at the ends; it has a distinct ectepicondylar groove. The ulna is very broad at the proximal end, but narrows distally; its proximal portion forms a thin plate of bone. The radius crosses the ulna, its proximal end lying entirely in front of it, while the distal ends of the two bones lie side by side. The carpus cannot be made out. Only metacarpals 1, 2, and 3 are functional; but a possible representative of 4 lies closely pressed to the back of the other three. Both phalanges of digit 1 are preserved, the last being a strong claw.

Ornithosuchus is restored as an animal walking on all fours, with the head carried rather low. The proportions are identical with those of *Etosaurus*.

A description is given of the skeleton of a very small reptile, interesting as recalling *Etosaurus* in its armour, and because it shows the whole of the animal except the tail.

4. 'Some Reptilian Tracks from the Trias of Runcorn (Cheshire).'

By D. M. S. Watson, B.Sc.

Very little information exists as to the tracks of the smaller reptilia of the Trias, although several types of footprints have been described from isolated examples. Four types of tracks which occur on the slab of sandstone from Weston Point, described in 1840 by Dr. Black, are discussed in this paper. They belong to forms generally included in the Rhynchosauroid types and to the footprint I, Beasley.

Both pes and manus are impressed in three of the cases, the other being so small that it is doubtful whether the manus would have made a recognizable impression if it did touch the ground.

Footprint A 2, Beasley, has a manus very similar to the pes, but showing some traces of the palm.

Footprint A 8, spec. nov., has five toes in the pes connected by a web. The manus is also five-toed, but corresponds to some extent to I, Beasley. There is a well-marked tail-streak in the track.

E, Beasley, which is very similar to I, really has five digits, the fifth being directed backwards and only just touching the ground.

A very small footprint is described as A 9.

It is suggested that some of these prints may quite well belong to such Thecodonts as *Ornithosuchus*.

5. 'The Anatomy of *Lepidophloios laricinus*, Sternb.'

By D. M. S. Watson, B.Sc.

A specimen of *Lepidophloios laricinus*, found in one of the coal-balls of Lancashire, shows the internal structure. The species is new, and is of the ordinary lepidodendroid type, but is remarkable for the great size and strength of the corona and the leaf-traces.

Lepidophloios acadianus, Dawson, which is identical with *L. laricinus*, appears to differ in its internal structure, in having still stronger protoxylem-points and leaf-traces.

Lematophloios crassicaule, Corda, which is *L. acerossus*, L. & H., appears to resemble greatly the Lancashire specimen of *L. laricinus* in its structure, and is quite distinct from the specimen of the same form described by Cash & Lomax.

Lepidodendron fuliginosum, Will., a structural species, appears to include a specimen the external structure of which corresponds with *Lepidophloios acerossus*, *Lepidodendron obovatum*, *L. aculeatum*, and *Sigillaria discophora*. Under these circumstances, it is proposed to take no account of the impression-species in considering the synonymy of the structural specimens, and *vice versa*. When the exterior of a structural specimen is actually known, it may be referred to by the name of the structural species, with that of the impression-species added in brackets.

MISCELLANEOUS.

Burmeister's 'Genera quaedam Insectorum.'

REFERRING to Mr. Sherborn's notes in the last number of the 'Annals,' on the dates of publication of this work, and having in my library parts 1 to 9 in the original wrappers as issued, as well as a complete copy in the original boards, I am able to make some corrections and clear up the questions upon which he is in doubt.

Thrips and *Phlæohrips* were issued in part 6 (not in 5). *Eudinopus* was also issued in this part.

Platygenia, which he states he cannot find, was issued in part 7.

Phthivius was issued in part 4, and the "Carton" is a correction, not an addition as he states, and with *Lystra* and *Phenax* "Carton" must have been issued in part 10 as he suggests.

A titlepage bearing "Vol. i. Rhynchota," 1838, with the Preface dated October 1837, was issued in part 1; but, as other orders were included in the later parts, another titlepage, with "Rhynchota" omitted and dated 1838-1846, was issued with the last part, and this should be taken as the correct date of publication, 1837 being the date the Preface was written.

Each of the ten parts comprised four plates with the corresponding text.

O. E. JANSON.

July 3rd, 1900.